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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,681	01/05/2007	Maurits Van Camp	13810-17	7136
45473 7590 02/02/2009 BRINKS, HOFER, GILSON & LIONE P.O. BOX 1340 MORRISVILLE, NC 27560				
EXAMINER				
MC GUTHRY BANKS, TIMA MICHELE				
ART UNIT		PAPER NUMBER		
1793				
MAIL DATE		DELIVERY MODE		
02/02/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/573,681

Applicant(s)

VAN CAMP ET AL.

Examiner

TIMA M. MCGUTHRY-BANKS

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) 21 and 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-16, 19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/S5108)
Paper No(s)/Mail Date 1/5/07
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Status of Claims

Claims 1-11 are canceled and Claims 12-22 are new.

Election/Restrictions

Claims 21 and 22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected apparatus, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9 December 2008.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Examiner's Interpretation

Since applicant does not exemplify or define the claimed term "valorization" or "valorizing," the examiner will interpret these limitations as recovering zinc and lead for further use.

Claim Objections

Claim 14 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the

claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Applicant claims only one or both of dolomite and limestone is added as a flux. If this flux is the same as the flux in Claim 14, neither of these fluxes is listed. Dolomite is $\text{CaCO}_3 \cdot \text{MgCO}_3$, and limestone is Ca(OH)_2 .

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 12, 13, 15, 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldock et al (US 5,282,881) in view of Santeen et al (US 6,155,965).

Baldock et al teaches smelting metallurgical waste materials containing iron compounds and toxic elements (title). The waste material includes Zn and Pb (Claim 20). The waste material is mixed with a reductant under reducing conditions, whereby volatilization of heavy metals such as Zn and Pb occurs (Claim 1). Regarding the flash or agitated bath fuming step, Baldock et al teaches on agitated bath in the figure. Slag is produced (column 3, lines 34 and 35). Silica is used as a flux (column 5, lines 45-49), and Fe is FeO in the slag. Regarding Claim 13, the waste is from leaching calcine (column 1, lines 13 and 14). Regarding Claim 15, the range reads on 0% MgO. Regarding Claim 16, a molten copper solution is formed with silver and gold (column 4, lines 41-43). Regarding Claim 19, the figure shows a submerged lance (see also column 2, line 48). However, Baldock et al does not teach the slag composition as in Claim 12.

Santeen et al teaches treating fly ash wherein heavy metals are separated and wherein a leaching resistant slag is formed. The ratio of the CaO/SiO₂ in the slag is regulated to be less than 1.2. It would have been obvious to one of ordinary skill in the art at the time the invention was made to regulate the CaO/SiO₂ in the process of Baldock et al to be less than 1.2 as taught by Santeen et al, since Santeen et al teaches that the slag would have a high degree of leaching resistance (column 1, lines 62 and 63).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baldock et al in view of Santeen et al as applied to claim 12 and 13 above, and further in view of Petterson et al (US 4,072,503).

Baldock et al in view of Santeen et al discloses the invention substantially as claimed. However, Baldock et al in view of Santeen et al does not teach adding dolomite or limestone as claimed. Petterson et al teaches a pyrometallurgical process for recovering lead, zinc and precious metals from leaching residues and precipitates (abstract). Dolomite amongst other oxides of alkali earth metals are added (column 4, lines 41 and 42). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add dolomite to the process of Baldock et al in view of Santeen et al, since Petterson et al teaches that supplying dolomite prevents substantial change of the slag composition and to provide a suitable composition of the slag (column 4, lines 42-45).

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baldock et al in view of Santeen et al as applied to claim 12 above, and further in view of Derwent Acc-No. 1989-368692 for SU 1048810 and DD 271238 (SU '810).

Baldock et al in view of Santeen et al discloses the invention substantially as claimed. Though Baldock et al teaches reactors such as bottom blown tuyere injection systems (column 3, lines 49 and 50), Baldock et al does not specifically teach that tuyeres use plasma as claimed. SU '810 teaches a plasma unit for metal refining and melting with plasma submerging tuyeres situated in the melting chamber side wall (abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the melting chamber taught in

SU '810, since SU '810 teaches that the metal refining process efficiency is increased, the construction is simplified and operation reliability is increased (abstract).

Allowable Subject Matter

Claims 17 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: regarding Claims 17 and 18, Baldock et al does not disclose or suggest fuming a major part of Ge together with Zn and Pb as in Claim 17. Baldock et al teaches that Ge is recovered in the molten phase.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMA M. MCGUTHRY-BANKS whose telephone number is (571)272-2744. The examiner can normally be reached on M-F 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art Unit
1793

/T. M. M./
Examiner, Art Unit 1793
30 January 2009